

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior version, and listings, of claims in this application:

Listing of Claims:

1. (Currently Amended) A method ~~Method~~ to reduce noise in a noisy speech signal, comprising: ~~the steps of~~

[[•]] applying at least two versions of said noisy speech signal to a first filter, said first filter outputting a speech reference signal, said speech reference signal comprising a desired signal and a noise contribution, and at least one noise reference signal, each of said at least one noise reference signals comprising a speech leakage contribution and a noise contribution,

[[•]] applying a filtering operation to each of said at least one noise reference signals, and

[[•]] subtracting from said speech reference signal each of said filtered noise reference signals, yielding an enhanced speech signal,

~~characterised in that~~ whereby said filtering operation is performed with filters having filter coefficients determined by ~~taking into account speech leakage contributions in said at least one noise reference signal~~ minimising-minimizing a weighted sum of the speech distortion energy and the residual noise energy, said speech distortion energy being the energy of said speech leakage contributions in said enhanced speech signal and said residual noise energy being the energy in the noise contributions of said speech reference signal in said enhanced speech signal and of said at least one noise reference signal in said enhanced speech signal.

2. (Currently Amended) The method ~~Method~~ to reduce noise according to claim 1, as ~~in claim 1~~, wherein said at least two versions of said noisy speech signal are signals from at east two microphones picking up said noisy speech signal.

3. (Currently Amended) The method ~~Method~~ to reduce noise according to claim 1, as ~~in claim 1 or 2~~, wherein said first filter is a spatial pre-processor filter, comprising a beamformer filter and a blocking matrix filter.

4. (Currently Amended) The method ~~Method~~ to reduce noise according to claim 3, as ~~in claim 3~~, wherein said speech reference signal is output by said beamformer filter and said at least one noise reference signal is output by said blocking matrix filter.

5. (Currently Amended) The method ~~Method~~ to reduce noise according to claim 1, as ~~in any of the previous claims~~, wherein said speech reference signal is delayed before performing the subtraction step.

6. (Currently Amended) The method ~~Method~~ to reduce noise according to claim 1, as ~~in any of the previous claims~~, wherein additionally a filtering operation is applied to said speech reference signal and wherein said filtered speech reference signal is also subtracted from said speech reference signal.

7. (Currently Amended) The method ~~Method~~ to reduce noise according to claim 1, as ~~in any of the previous claims~~, further comprising the step of regularly adapting said filter coefficients, thereby taking into account said speech leakage contributions in each of said at least one noise reference ~~signal~~ signals or taking into account said speech leakage contributions in each of said at least one noise reference ~~signal~~ signals and said desired signal ~~speech contribution~~ in said speech reference signal.

8. (Cancelled)

9. (Currently Amended) A signal ~~Signal~~-processing circuit for reducing noise in a noisy speech signal, comprising

[[•]] a first filter, said first filter having at least two inputs and being arranged for outputting a speech reference signal and at least one noise reference signal,

[[•]] a filter to apply said speech reference signal to and filters to apply each of said at least one noise reference signals to, and

[[•]] summation means for subtracting from said speech reference signal said filtered speech reference signal and each of said filtered noise reference signals.

10. (Currently Amended) The signal ~~Signal~~-processing circuit according to claim 9, as ~~in claim 8~~, wherein said first filter is a spatial pre-processor filter, comprising a beamformer filter and a blocking matrix filter.

11. (Currently Amended) ~~The signal~~ Signal-processing circuit according to claim 9, as ~~in claim 9~~, wherein said beamformer filter is a delay-and-sum beamformer.

12. (Cancelled)

13. (New) The signal processing circuit according to claim 9, wherein said signal processing circuit is implanted in a prosthetic hearing device.